b) Amendments to Drawings:

Sheet 1 of 5 drawing sheets includes changes to Fig. 1. This sheet replaces the original sheet 1/5 including Fig. 1.

c) Remarks

The remainder of this Reply is set forth under appropriate headings for the convenience of the Examiner.

Election/Restriction

The Office Action states that the traversal on the grounds that the two inventions are not independent of each other is not found persuasive because in Claim 1 "the medium filled in the cavity", whereas in Claim 14 "the sample is located in the cavity" indicating that "the cavity is empty of all material other than air and the sample".

Applicant acknowledges that the restriction requirement has been made final and that Claims 14-19 are withdrawn from further consideration.

It is respectfully noted, however, that in step three, Claim 14 explicitly recites "applying onto the sample region a medium that corresponds substantially to the refractive index of the coverslip being used".

Drawings

The drawings are objected to. The Office Action states that the box elements in Fig. 1 need to be labeled in accordance with 37 C.F.R. §1.83(a) and that formal drawings will be required when the application is allowed. Fig. 1 has been labeled in compliance to overcome the objection.

Rejection of Claims 1, 2, 4, 5 and 7-13

Claims 1, 2, 4, 5 and 7-13 are rejected under 35 U.S.C. §103(a) over Bewersdorf (U.S. Patent Application Publication No. 2002/0105722) in view of Eastman (U.S. Patent No. 6,411,434).

The Office Action states that Bewersdorf teaches a confocal microscope comprising first and second coverslips, with the second coverslip carrying a mirror surrounding the sample region but lacks reference to a cavity or frame. The Office Action also states that Eastman teaches use of a frame and a cavity between a first and

second coverslip, along with a medium filled in the cavity. The Office Action further states that even though "Eastman is silent as to the medium having approximately the same refractive index of the first and second coverslips, the refractive index of the Eastman medium must approximately match the refractive indices of the first and second coverslips because a significant difference between the refractive inices would cause reflection of light at the interface of the medium and the coverslip". In addition, the Office Action states that it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the cavity and frame taught by Eastman in the Bewersdorf invention for the purpose of holding the sample while protecting the sample from being damaged.

Applicant respectfully disagrees.

For an obviousness rejection to be proper, the Patent Office must meet the burden of establishing a prima facie case of obviousness. The Patent Office must meet the burden of establishing that all elements of the invention are disclosed in the cited publications, which must have a suggestion, teaching or motivation for one of ordinary skill in the art to modify a reference or combined references.[1] The cited publications should explicitly provide a reasonable expectation of success, determined from the position of one of ordinary skill in the art at the time the invention was made.[2]

In one embodiment, Applicant's claimed invention is directed to a sample carrier for a confocal microscope having a first and a second coverslip, with the second coverslip carrying a mirror. The sample carrier includes a frame holding the coverslips providing a cavity between the first and second coverslips and a medium filled in the cavity, which has approximately the same refractive index as the first and the second coverslip. The mirror surrounds a sample region which is defined on the second coverslip.

Examples of a mirror surrounding the sample region are shown in Figs. 3, 5a, 5b, 6, 7, 8 or 9 and are described in the specification, for instance at page 8, lines 2-10:

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1 *In re Sang Su Lee, 277 F.3d 1338, 61 USPQ2d 1430 (Fed. Cir. 2002).*
2 *In re Fine, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); In re Wilson, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970);*
Amgen v. Chugai Pharmaceuticals Co., 927 U.S.P.Q.2d, 1016, 1023 (Fed. Cir. 1996);

> In the preferred embodiment, mirror 29 is present in circular form around the actual specimen region 34. Any other shape is also possible, provided the mirror surrounds the sample region. A rectangular shape with a rectangular or round hole in the center would also be conceivable.

In the example discussed at page 3, paragraph 19 of the specification, "the mirror is embodied most simply as a ring".

Applicant's claimed sample carrier makes possible not only examination of the sample but also alignment of the microscope. As discussed in the specification at page 8, lines 8-14, one of the advantages of the claimed invention is that of alignment equalization. As the claimed sample carrier is displaced out of the sample region and toward any edge region, light traveling along the optical axis encounters a mirror-coated zone. As discussed at page 8, lines 14-15 of the specification, once the alignment is completed, the sample is unequivocally and rapidly located again and the measurement can be continued.

Bewersdorf discloses a specimen sandwiched between two specimen support units, preferably configured as cover glasses.

As described in Bewersdorf at page 5, paragraphs 0054 – 0057 and shown in Figure 4, one of the cover glasses has a coating. The coating is applied over the entire surface of the cover glass and faces the specimen. Determination of the illumination state in the specimen region is performed on the basis of light reflected and induced at the coated surface by measuring an intensity signal profile as a function of the axial position of the surface. For that purpose, the specimen together with the cover glasses is moved along the optical axis of the objectives and light reflected and induced at the coated surface is detected.

As seen in paragraph 0053, and illustrated in Fig. 4, Bewersdorf teaches the presence of immersion fluid **24** between cover glasses **22** and objectives **6**. At paragraph 0022, the reference describes an embodiment in which coherent anti-Stokes Raman scattering (CARS) can occur "only at a location at which an optical asymmetry exists, for example a discontinuity in refractive index that is present at the surface of the specimen support unit because a refractive index transition exists there from glass to the immersion medium surrounding the specimen".

Thus Bewersdorf neither discloses nor suggests a mirror that surrounds the sample region, as claimed by Applicant. Nor does the reference teach or suggest a frame which holds the first and second coverslips and thereby provides a cavity between the first and second coverslips. There is no disclosure, suggestion or motivation in Bewersdorf for a medium filled in the cavity, wherein the medium has approximately the same refractive index as the first and the second coverslip. On the contrary, as noted above, the reference discloses a discontinuity in refractive index between glass and immersion medium.

These deficiencies are not remedied by Eastman.

Eastman discloses a cassette for facilitating optical sectioning of a retained tissue specimen. As described at Col. 3, lines 46-54, the cassette has "a base member with a rigid optically transparent window upon which a tissue specimen is situated, a pliable plastic membrane which is locatable over a substantial portion of the base member including the window, and an upper member, having an aperture therethrough, locatable over the base member to provide an enclosed cavity between the membrane and the window sealing the tissue specimen therein".

As seen in Eastman at Col. 6, line 47-54 and Col. 7, window **16** can be made of a cut out sheet of thin glass, amorphous polyolefin or other optically homogeneous material through which optical imaging can be performed, while membrane **26** may be a "thin layer of plastic, such as plastic wrap typically used for food preservation, and should be sufficiently transparent to provide viewing therethrough by a user or camera".

Eastman also teaches a fluid. At Col. 9, lines 25-42, and in Fig. 12, the reference discloses filling a fluid into a cavity thereby immersing a tissue specimen in the fluid.

At Col. 11, lines 4-8, and in Fig. 14, Eastman discloses that, "[p]rior to locating the cassette in stage **72**, a fluid which is matched to the optical index of the immersion objective lens **64*a*** is inserted into the cavity of cassette **10** via the injection port **28** or **33**" and that "optionally, an optically coupling fluid **71** may be placed between lens **64*a*** and window **16** of cassette **10**, to optically couple the lens **64*a*** to window **16**".

At Col. 11, line 63, through Col. 12, line 1, Eastman teaches the use of a preservative fluid such as formalin.

And throughout the cited document, it is taught that the fluid in the cavity is selected to have an index of refraction substantially matching that of the tissue specimen. See, e.g., Claims 22, 33 or 40 of Eastman as well as Col 12, lines 8-53, describing the effects of specimen surface corrugations on the fidelity of images, and teaching an immersion fluid chosen to correct optical distortions due to the surface texture of the tissue specimen.

In light of these explicit teachings, there is nothing in the reference to indicate or suggest that "the refractive index of the Eastman medium must approximately match the refractive indices of the first and second coverslips because a significant difference between refractive indices would cause reflection of light at the interface of the medium and the coverslip", as asserted in the Office Action.

Moreover, since Eastman teaches that the rigid window and the pliable membrane can be made of different materials, the reference provides no suggestion, incentive or motivation for a medium filled in the cavity wherein the medium has approximately the same refractive index as the first and second coverslips.

Thus neither Bewersdorf nor Eastman, alone or in combination discloses, suggests or provides an incentive for a sample carrier for a confocal microscope comprising a first coverslip and a second coverslip, wherein the second coverslip carries a mirror; wherein the mirror surrounds a sample region which is defined on the second coverslip; a frame which holds the first and second coverslip and thereby provides a cavity between the first and the second coverslip; a medium filled in the cavity, which has approximately the same refractive index as the first and the second coverslip.

Therefore, Claims 1, 2, 4, 5 and 7-13 meet the requirements of 35 U.S.C. §103(a) over Bewersdorf in view of Eastman and are allowable.

Rejection of Claim 3

Claim 3 is rejected under 35 U.S.C. 103(a) over Bewersdorf (U.S. Patent Application Publication No. 2002/0105722) in view of Eastman (U.S. Patent No. 6,411,434) and further in view of Binnings (U.S. Patent No. 3,620,596).

The Office Action states that Bewersdorf teaches the invention as claimed but lacks reference to quartz and glycerol, that Eastman (Col. 6, lines 43-45) teaches "the use of quartz as a means to create the coverslips and that Binnings teaches the use of glycerol as a means to fill the cavity of a microscope slide.

At the onset, it is respectfully noted that Applicant has reviewed the text at Col. 6, lines 43-45 of Eastman and also has searched the entire text of U.S. Patent No. 6,411,434 without finding a reference to quartz.

Furthermore, instant Claim 3 includes all the elements of Claim 1 on which it depends. As discussed above, neither Bewersdorf nor Eastman, separately or in combination, discloses or suggests Applicant's invention as set forth in Claim 1.

Binnings teaches a microscope slide for use in microscopes such as dark-field microscopes and does not remedy the deficiencies of Bewersdorf and/or Eastman.

Thus none of the cited references, separately or in combination, teaches or suggests Applicant's Claim 3. Therefore, Claim 3 meets the requirements of 35 U.S.C. 103(a) over Bewersdorf in view of Eastman and further in view of Binnings amd should be allowed.

Rejection of Claim 6

Claim 6 is rejected under 35 U.S.C. §103(a) over Bewersdorf (U.S. Patent Application Publication No. 2002/0105722) in view of Eastman (U.S. Patent No. 6,411,434) and further in view of Aagard (U.S. Patent No. 3,720,924).

The Office Action states that Bewersdorf teaches the use of metal mirror but lacks reference to the use of aluminum in the mirror and that Aagard teaches the use of aluminum to create a mirror in a microscope.

Claim 6 includes all the elements of Claim 1, on which it depends. As discussed above, neither Bewesrdorf, nor Eastamn, alone or together, discloses or suggests Applicant's Claim 1.

Aagard discloses an optical mass memory utilizing a rotatable substrate and does not remedy the deficiencies of Bewesrdorf, and/or Eastamn.

Thus none of the cited references, separately or in combination, discloses or suggests Applicant's invention as set forth in Claim 6. Therefore, Claim 6 meets the requirements of 35 U.S.C. §103(a) over Bewersdorf in view of Eastman and further in view of Aagard and should be allowed.

Applicant believes that the present application is in condition for allowance. A Notice of Allowance is respectfully solicited. Should any questions arise, the Examiner is encouraged to contact the undersigned.

Respectfully submitted,
HOUSTON ELISEEVA LLP

By Maria Eliseeva
Maria M. Eliseeva
Registration No.: 43,328
Tel.: 781 863 9991
Fax: 781 863 9931

4 Militia Drive, Suite 4
Lexington, Massachusetts 02421
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